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EXAMINER	
HWANG, JOON H	

ART UNIT	PAPER NUMBER
2166	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/753,332	COATES, JOSHUA	
	Examiner	Art Unit	
	Joon H. Hwang	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2006* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8/8/06* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The applicants amended claims 1, 11, and 21 in the amendment received on 8/8/06.

The pending claims are 1-32.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 11, and 21 have been considered but are moot in view of the new ground(s) of rejection.

A. The applicant added in claims 1 and 11 the limitations of intelligent storage nodes directly accessible to DOSMs and in claim 21 the limitations of DDM for directly accessing the file system information in the first directory. These limitations are addressed in the following rejection.

B. The applicant argues that the references when combined do not teach or suggest all the claim limitations.

The examiner respectfully traverses. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Bergsten discloses a distributed storage system. Bergsten teaches providing a plurality of distributed object storage managers "DOSMs" for receiving requests for files (i.e., a plurality of distributed storage controllers for receiving requests for files, fig. 1 and line 41 in col. 7 thru line 3 in col. 8). Bergsten teaches intelligent storage nodes accessible to DOSMs via communication network addresses associated with the intelligent storage nodes (i.e., storage arrays accessible to storage controllers via real device addresses associated with the storage arrays, lines 15-36 in col. 3, lines 26-38 in col. 6, and lines 15-28 in col. 9). Bergsten teaches redirecting the file request to the second intelligent storage node (i.e., recovery from many possible modes, such as failure of a storage device, line 65 in col. 5 thru line 2 in col. 6; the first storage array in error condition, line 45 in col. 8 thru line 15 in col. 9; and a storage controller redirects the request to the next "nearest" storage device, wherein the next "nearest" storage device can be in a remote storage array, line 50 in col. 10 thru line 22 in col. 40). Bergsten does not explicitly disclose each intelligent storage node including processor core. However, DuLac teaches an intelligent storage node including a processor core and a plurality of storage devices (i.e., buffers and a storage element, abstract and fig. 2; and scalability by incorporating a few to many disk drives, lines 10-26 in col. 1) in order to control the

storage and retrieval of data at the node. Therefore, based on Bergsten in view of DuLac, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of DuLac to the system of Bergsten in order to control the storage and retrieval of data at the storage node. Bergsten and DuLac do not explicitly disclose accessing, via the network, the file stored in the second storage array in response to a subsequent file request. However, Kern teaches accessing, via the network, the file stored in the second storage (the second intelligent storage node) in response to a subsequent file request or the file request (abstract, fig. 5, lines 50-67 in col. 4, and lines 1-25 in col. 5, lines 40-63 in col. 5) through a switching operation. Therefore, based on Bergsten in view of DuLac, and further in view of Kern, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Kern to the system of Bergsten in order to complete file requests regardless of a system failure. Bergsten further teaches locating storage arrays and storage controllers geographically remote by using a network, such as ESCON, in order to prevent natural disaster (lines 25-40 in col. 1 and lines 36-67 in col. 3). Bergsten, DuLac, and Kern do not explicitly disclose a wide area, public access network between a storage array and a storage controller. However, Wilson teaches the ESCON network can be replaced with the Internet network, which is a wide area, public access network in a distributed storage system (fig. 12, lines 27-43 in col. 10, and line 35 in col. 28 thru line 7 in col. 29) in order to result in a less expensive implementation of a network system. Therefore, based on Bergsten in view of DuLac and Kern, and further in view of Wilson, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to utilize the teachings of Wilson to the system of Bergsten in order to result in a less expensive implementation of a network system.

"Reason, suggestion, or **motivation to combine two or more prior art references** in single invention **may come from references themselves**, from **knowledge of those skilled in art** that certain references or disclosures in references are known to be of interest in particular field, or from **nature of problem to be solved**;" Pro-Mold and Tool Co. v. Great Lakes Plastics Inc. U.S. Court of Appeals Federal Circuit 37 USPQ2d 1626 Decided February 7, 1996 Nos. 95-1171, -1181.

"Prima facie case of obviousness is established when teachings of prior art appear to suggest claimed subject matter to person of ordinary skill in art; it is incumbent upon applicant to go forward with objective evidence of unobviousness once prima facie case is established." In re Rinehart (CCPA) 189 USPQ 143 Decided Mar. 11, 1976 No. 75-608 U.S. Court of Customs and Patent Appeals.

Therefore, the applicant's arguments are not persuasive.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification, page 15, lines 9-16, describes the DOSMs communicate with the intelligent storage nodes via an interconnect fabric. See also fig. 3. Therefore, the limitations of intelligent storage nodes *directly* accessible to said DOSMs in claims 1 and 11 are not supported by the specification. The claims 2-10, 12-20, and 31-32 are likewise rejected.

The specification, page 29, lines 6-16, and fig. 11 describe a Distributed Directory Manager only accesses its respective Distributed Directory. Therefore, the limitations of distributed directory manager for *directly* accessing the first directory and the second directory in claim 21 are not supported by the specification. The claims 22-30 are likewise rejected.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-2, 4-12, 14-17, 19-20, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergsten (U.S. Patent No. 6,360,306) in view of DuLac (U.S. Patent No. 5,550,986), Kern et al. (U.S. Patent No. 5,870,537), and Wilson (U.S. Patent No. 6,718,347), and further in view of Xu et al. (U.S. Patent No. 6,324,581).

With respect to claim 1, Bergsten teaches providing a plurality of distributed storage controllers, which teach object storage managers "DOSMs", for receiving requests for files (fig. 1 and line 41 in col. 7 thru line 3 in col. 8). Bergsten teaches providing at least three storage arrays (intelligent storage nodes) accessible to the storage controllers (DOSMs) over a communication network coupling the storage controllers (DOSMs) to the storage arrays (intelligent storage nodes), the storage arrays (intelligent storage nodes) accessible to the storage controllers (DOSMs) via communication network address associated with the storage arrays (the intelligent storage node, fig. 1, lines 15-67 in col. 3, lines 16-25 in col. 4, lines 36-55 in col. 4, lines 15-38 in col. 6, and lines 15-28 in col. 9). Bergsten teaches storing at least one file in a first storage array (a first intelligent storage node) accessed via a controller (a DOSM) over the communication network (fig. 1 and lines 28-64 in col. 5). Bergsten teaches storing a duplicate of the file in a second storage array (a second intelligent storage node) accessed via the communication network (fig. 1 and lines 28-64 in col. 5). Bergsten teaches in the event of a failure of the first storage array (the first intelligent storage node) resulting in a failover condition (i.e., error condition, line 45 in col. 8 thru line 15 in col. 9) rendering the first storage array (the first intelligent storage node) unavailable, upon receiving a request for said file by a controller (a DOSM), identifying by the controller that the second storage array (the second intelligent storage node) stores the duplicate of the file, redirecting the file request from the first storage array (the first intelligent storage node), via the communication network, to the second storage array (the second intelligent storage node) and indicating a location determined

at the storage controller (the DOSM) for the file in the second storage array (the second intelligent storage node, line 65 in col. 5 thru line 2 in col. 6 and line 16 in col. 9 thru line 22 in col. 11). Bergsten does not explicitly disclose each intelligent storage node including processor core. However, DuLac teaches an intelligent storage node including a processor core and a plurality of storage devices (i.e., buffers and a storage element, abstract and fig. 2; and scalability by incorporating a few to many disk drives, lines 10-26 in col. 1) in order to control the storage and retrieval of data at the node. Therefore, based on Bergsten in view of DuLac, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of DuLac to the system of Bergsten in order to control the storage and retrieval of data at the storage node. Bergsten and DuLac do not explicitly disclose accessing, via the network, the file stored in the second storage array in response to a subsequent file request. However, Kern teaches accessing, via the network, the file stored in the second storage (the second intelligent storage node) in response to a subsequent file request or the file request (abstract, fig. 5, lines 50-67 in col. 4, and lines 1-25 in col. 5, lines 40-63 in col. 5) through a switching operation. Therefore, based on Bergsten in view of DuLac, and further in view of Kern, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Kern to the system of Bergsten in order to complete file requests regardless of a system failure. Bergsten further teaches locating storage arrays and storage controllers geographically remote by using a network, such as ESCON, in order to prevent natural disaster (lines 25-40 in col. 1 and lines 36-67 in col. 3). Bergsten, DuLac, and Kern do

not explicitly disclose a wide area, public access network between a storage array and a storage controller. However, Wilson teaches the ESCON network can be replaced with the Internet network, which is a wide area, public access network (fig. 12, lines 27-43 in col. 10, and line 35 in col. 28 thru line 7 in col. 29) in order to result in a less expensive implementation of a network system. Therefore, based on Bergsten in view of DuLac and Kern, and further in view of Wilson, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Wilson to the system of Bergsten in order to result in a less expensive implementation of a network system. Bergsten, DuLac, Kern, and Wilson do not explicitly disclose storage nodes directly accessible to a plurality of distributed object storage managers. However, Xu teaches storage nodes directly accessible to a plurality of distributed object storage managers (figs. 1-4, lines 38-54 in col. 11, lines 3-17 in col. 12, and lines 40-48 in col. 38) in order to prevent the network overloading. Therefore, based on Bergsten in view of DuLac, Kern, and Wilson, and further in view of Xu, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Xu to the system of Bergsten in order to prevent the network overloading.

With respect to claim 2, Bergsten teaches storing at least one file in a first storage array (a first intelligent storage node) accessed via a network comprises the step of accessing the first storage array (the first intelligent storage node) via a first storage device address (a first network address, lines 15-36 in col. 3 and line 16 in col. 9 thru line 22 in col. 11). Bergsten teaches storing a duplicate of the file in a second

storage array (a second intelligent storage node) accessed via the network comprises accessing the second storage array (the second intelligent storage node) via a second storage device address (a second network address, lines 15-36 in col. 3 and line 16 in col. 9 thru line 22 in col. 11). Bergsten teaches determining a location for the file in the second storage array (the second intelligent storage node) comprises generating a mapping between the first device address and the second device address (lines 15-36 in col. 3 and line 16 in col. 9 thru line 22 in col. 11).

With respect to claim 4, Bergsten teaches storing the file in the first storage array (the first intelligent storage node) located in a first storage center (i.e., a first host computer system with its local storage controller and its storage array, fig. 1). Bergsten teaches storing the file in the second storage array (the second intelligent storage node) located in a second storage center (i.e., a second host computer system with its local storage controller and its storage array in fig. 1), geographically distant from the first storage center (lines 54-63 in col. 3 and lines 16-24 in col. 4).

With respect to claim 5, Bergsten teaches storing a plurality of files in a plurality of storage arrays (intelligent storage nodes) in the first storage center and storing duplicates of the files in a plurality of storage arrays (intelligent storage nodes) in the second storage center and the storage arrays (the intelligent storage nodes) in the first storage center and the storage arrays (the intelligent storage nodes) in the second storage center (fig. 1 and lines 16-24 in col. 4).

The limitations of claim 6 are rejected in the analysis of claim 4 above, and the claim is rejected on that basis.

With respect to claim 7, Bergsten further teaches storage centers (fig. 1) geographically distant (lines 16-24 in col. 4). Bergsten also teaches searching for the file in the second storage after entering the failover condition (line 28 in col. 8 thru line 15 in col. 9 and line 23 in col. 11 thru line 4 in col. 12). Therefore, the limitations of claim 7 are rejected in the analysis of claim 5 above, and the claim is rejected on that basis.

With respect to claims 8-10, Wilson further teaches a point-to-point protocol and a multi-cast protocol (lines 19-55 in col. 33) for a communication network. Therefore, the limitations of claims 8-10 are rejected in the analysis of claims 1 and 7 above, and these claims are rejected on that basis.

The limitations of claim 11 are rejected in the analysis of claim 1 above, and the claim is rejected on that basis.

The limitations of claim 12 are rejected in the analysis of claim 2 above, and the claim is rejected on that basis.

The limitations of claim 14 are rejected in the analysis of claim 4 above, and the claim is rejected on that basis.

The limitations of claim 15 are rejected in the analysis of claim 5 above, and the claim is rejected on that basis.

The limitations of claim 16 are rejected in the analysis of claim 6 above, and the claim is rejected on that basis.

The limitations of claim 17 are rejected in the analysis of claim 7 above, and the claim is rejected on that basis.

The limitations of claims 19-20 are rejected in the analysis of claims 8-10 above, and these claims are rejected on that basis.

With respect to claim 32, Bergsten further teaches communicating with the storage devices using the SCSI protocol (line 61 in col. 6 thru line 8 in col. 7). Therefore, the limitations of claim 32 are rejected in the analysis of claim 11 above, and the claim is rejected on that basis.

7. Claims 21-22, 24-27, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergsten (U.S. Patent No. 6,360,306) in view of DuLac (U.S. Patent No. 5,550,986) and Kern et al. (U.S. Patent No. 5,870,537), and further in view of Wilson (U.S. Patent No. 6,718,347).

With respect to claim 21, Bergsten teaches a virtual file system (lines 15-25 in col. 6). Bergsten teaches a first storage controller (a first directory), remote from a requesting client and from an associated storage array (an associated intelligent storage node), accessed via a network, for storing file system information associated with the storage array (the intelligent storage node) having multiple storage devices (fig. 1, fig. 5, line 41 in col. 7 thru line 3 in col. 8, lines 54-63 in col. 3, and lines 16-25 in col. 4). Bergsten teaches a second storage controller (a second directory), accessed via the network, for storing a duplicate of the file system information (fig. 1, lines 15-36 in col. 3, and line 16 in col. 9 thru line 22 in col. 11). Bergsten teaches at least one host processor concerning a distributed directory manager for directly accessing, via the

network, the file system information stored in the first storage controller in response to a file system request (fig. 1, fig. 5, line 50 in col. 7 thru line 3 in col. 8, and lines 28-39 in col. 5). Bergsten does not explicitly disclose each intelligent storage node including processor core. However, DuLac teaches an intelligent storage node including a processor core and a plurality of storage devices (i.e., buffers and a storage element, abstract and fig. 2; and scalability by incorporating a few to many disk drives, lines 10-26 in col. 1) in order to control the storage and retrieval of data at the node. Therefore, based on Bergsten in view of DuLac, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of DuLac to the system of Bergsten in order to control the storage and retrieval of data at the storage node. Bergsten and DuLac do not explicitly disclose accessing, via the network, the file system information stored in the second storage controller in response to the redirected file request. However, Kern teaches a switching operation that switches the direction of the request from the first storage, via the network, to the second storage when a failure occurs on the first storage and from a first storage controller, via the network, directly to a second storage controller when a failure occurs (i.e., an error indication, line 57 in col. 13 thru line 5 in col. 14 and fig. 1) on the first storage controller (abstract, fig. 1, fig. 5, lines 50-67 in col. 4, and lines 1-25 in col. 5). Kern teaches directing subsequent file requests to the second storage (lines 40-63 in col. 5) via the second storage controller, which teaches determining a location for the file system information in the second storage. Therefore, based on Bergsten in view of DuLac, and further in view of Kern, it would have been obvious to one having ordinary skill in the art at the time the invention

was made to utilize the teaching of Kern to the system of Bergsten in order to complete file requests regardless of a system failure. Bergsten further teaches locating storage arrays and storage controllers geographically remote by using a network, such as ESCON, in order to prevent natural disaster (lines 25-40 in col. 1 and lines 36-67 in col. 3). Bergsten, DuLac, and Kern do not explicitly disclose a wide area, public access network between a storage array and a storage controller. However, Wilson teaches the ESCON network can be replaced with the Internet network, which is a wide area, public access network (fig. 12, lines 27-43 in col. 10, and line 35 in col. 28 thru line 7 in col. 29) in order to result in a less expensive implementation of a network system. Therefore, based on Bergsten in view of DuLac and Kern, and further in view of Wilson, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Wilson to the system of Bergsten in order to result in a less expensive implementation of a network system.

With respect to claim 22, Kern teaches a device address (a network address) for a storage device (abstract, lines 65-67 in col. 4, and lines 1-25 in col. 5) in order to locate the storage device and a channel (address) of a storage controller to a processor (fig. 1, lines 40-56 in col. 13, and lines 10-30 in col. 8). The limitations of claim 22 are rejected in the analysis of claim 21 above, and the claim is rejected on that basis.

With respect to claim 24, Bergsten teaches a first storage center (i.e., a first host computer system with its local storage controller and its storage array) comprising the first storage controller (the first directory, fig. 1). Bergsten teaches a second storage center (i.e., a second host computer system with its local storage controller and its

storage array in fig. 1), geographically distant from the first storage center comprising the second storage controller (fig. 22, fig. 27, fig. 28, lines 54-63 in col. 3, and lines 16-24 in col. 4).

With respect to claim 25, Bergsten teaches the first storage center comprises file system information stored in a plurality of storage controllers (directories, fig. 1, fig. 27, and fig. 28). Bergsten teaches the second storage center comprises a duplicate of the file system information stored in a plurality of storage controllers (directories), so as to provide a one to one mapping between the storage controllers in the first storage center and the storage controllers in the second storage center (fig. 1, fig. 27, fig. 28, lines 28-64 in col. 5, and lines 26-38 in col. 6).

With respect to claim 26, Bergsten teaches the first and second storage controllers (directories) in a single storage center (fig. 22 and figs. 27-29).

With respect to claim 27, Bergsten teaches a first storage center (a first host system) comprising the fist storage controller (the first directory) and a second storage center (a second host system), which is geographically remote from the first storage center (the first host system), comprising the second storage controller (fig. 1, fig. 22, fig. 27, fig. 28, lines 54-63 in col. 3, lines 16-24 in col. 4, lines 28-64 in col. 5, and lines 26-38 in col. 6). The limitations of claim 27 are rejected in the analysis of claim 21 above, and the claim is rejected on that basis.

With respect to claims 29-30, Bergsten, DuLac, and Kern do not explicitly disclose a point-to-point protocol and a multi-cast protocol. However, Wilson further teaches a point-to-point protocol and a multi-cast protocol (lines 19-55 in col. 33) for a

communication network. Therefore, the limitations of claims 29-30 are rejected in the analysis of claims 21 and 27 above, and these claims are rejected on that basis.

8. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergsten (U.S. Patent No. 6,360,306) in view of DuLac (U.S. Patent No. 5,550,986), Kern et al. (U.S. Patent No. 5,870,537), Wilson (U.S. Patent No. 6,718,347), and Xu et al. (U.S. Patent No. 6,324,581), and further in view of Mogul (RFC0917 : Internet subnets, 1984, ACM, pages 1-17).

With respect to claim 3, Wilson further teaches Internet protocol ("IP") network addresses (lines 39-48 in col. 32). Bergsten, DuLac, Kern, Wilson, and Xu do not explicitly disclose a subnet portion of the IP network addresses. However, Mogul teaches IP address (pages 17-18) and a subnet as a subnet of a single Internet network (pages 3-7), which teaches the subnet is a local in the single Internet network. Thus, only subset portion of IP addresses for devices are different in the single Internet network. Therefore, based on Bergsten in view of DuLac, Kern, Wilson, and Xu, and further in view of Mogul, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilizes the teachings of Mogul to the system of Bergsten in order to manage local devices in a network system for an administrative convenience.

The limitations of claim 13 are rejected in the analysis above of claim 3, and the claim is rejected on that basis.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergsten (U.S. Patent No. 6,360,306) in view of DuLac (U.S. Patent No. 5,550,986), Kern et al. (U.S. Patent No. 5,870,537), and Wilson (U.S. Patent No. 6,718,347), and further in view of Mogul (RFC0917 : Internet subnets, 1984, ACM, pages 1-17).

With respect to claim 23, Wilson further teaches Internet protocol ("IP") network addresses (lines 39-48 in col. 32). Bergsten, DuLac, Kern, and Wilson do not explicitly disclose a subnet portion of the IP network addresses. However, Mogul teaches IP address (pages 17-18) and a subnet as a subnet of a single Internet network (pages 3-7), which teaches the subnet is a local in the single Internet network. Thus, only subset portion of IP addresses for devices are different in the single Internet network. Therefore, based on Bergsten in view of DuLac, Kern, and Wilson, and further in view of Mogul, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilizes the teachings of Mogul to the system of Bergsten in order to manage local devices in a network system for an administrative convenience.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergsten (U.S. Patent No. 6,360,306) in view of DuLac (U.S. Patent No. 5,550,986), Kern et al. (U.S. Patent No. 5,870,537), Wilson (U.S. Patent No. 6,718,347), and Xu et al. (U.S. Patent No. 6,324,581), and further in view of Miller (U.S. Patent No. 5,506,984).

With respect to claim 18, Bergsten, DuLac, Kern, Wilson, and Xu do not explicitly disclose searching for the file in a first storage center if the file is not located in a second storage center. However, Miller teaches searching another database for data if the data is not located in a searched database and continuing searching the other databases for the data until the data is located (abstract, fig. 5, and lines 10-51 in col. 14). Therefore, based on Bergsten in view of DuLac, Kern, Wilson, and Xu, and further in view of Miller, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Miller to the system of Bergsten in order to locate a file by continually searching the file in other storage center or storages.

11. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergsten (U.S. Patent No. 6,360,306) in view of DuLac (U.S. Patent No. 5,550,986), Kern et al. (U.S. Patent No. 5,870,537), and Wilson (U.S. Patent No. 6,718,347), and further in view of Miller (U.S. Patent No. 5,506,984).

With respect to claim 28, Bergsten, DuLac, Kern, and Wilson do not explicitly disclose searching for the file system information in a first storage center if the file system information is not located in a second storage center. However, Miller teaches searching another database for data if the data is not located in a searched database and continuing searching the other databases for the data until the data is located (abstract, fig. 5, and lines 10-51 in col. 14). Therefore, based on Bergsten in view of DuLac, Kern, and Wilson, and further in view of Miller, it would have been obvious to

one having ordinary skill in the art at the time the invention was made to utilize the teachings of Miller to the system of Bergsten in order to locate file system information by continually searching the file in other storage center or storages.

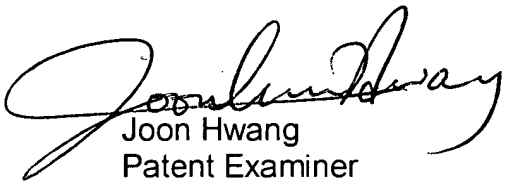
12. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergsten (U.S. Patent No. 6,360,306) in view of DuLac (U.S. Patent No. 5,550,986), Kern et al. (U.S. Patent No. 5,870,537), Wilson (U.S. Patent No. 6,718,347), and Xu et al. (U.S. Patent No. 6,324,581), and further in view of Stancil (U.S. Patent No. 6,272,584).

With respect to claim 31, Bergsten, DuLac, Kern, Wilson, and Xu disclose the claimed subject matter as discussed above except ISA protocol. However, Stancil discloses the ISA protocol for communication with a storage device (lines 15-35 in col. 1) in order to permit manufacturers of peripheral devices to design devices that would be compatible with most computer system. Therefore, based on Bergsten in view of DuLac, Kern, Wilson, and Xu, and further in view of Stancil, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Stancil to the system of Bergsten in order to permit manufacturers of peripheral devices to design devices that would be compatible with most computer system.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joon H. Hwang whose telephone number is 571-272-4036. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T. Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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10/13/06